ISSN (print) 0093-4666 © 2012. Mycotaxon, Ltd. ISSN (online) 2154-8889

MYCOTAXON

http://dx.doi.org/10.5248/119.483

Volume 119, pp. 483–485 *January–March 2012*

New combinations in *Lactifluus*. 2. *L.* subg. *Gerardii*

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Abstract — In this second of a series of three papers, new combinations in the genus *Lactifluus* are proposed. This paper treats *Lactarius* subg. *Gerardii* (proposed here as new combination in *Lactifluus*). In this subgenus 17 combinations at species level are proposed.

Key words — milkcaps, nomenclature, *Lactarius*, *Russulaceae*

Introduction

This is the second treatment of species now classified in *Lactifluus*. *Lactifluus* subgenera *Edules*, *Lactariopsis*, and *Russulopsis* were discussed in the first article (Verbeken et al. 2012).

Taxonomy

Lactifluus subg. *Gerardii*

This recently established subgenus in *Lactarius* represents a group of milkcaps that is well defined both molecularly and morphologically. Species are agaricoid with brown pileus and stipe, contrasting pale lamellae, and a white spore print. Three deviant species —all three remarkably small, pleurotoid, and white *(Lactarius uyedae*, *L. conchatulus*, *L. genevievae*)— also belong to this subgenus. Their alliance with *Lactifluus* subg. *Gerardii* is confirmed by a multi-gene phylogeny but is also substantiated by their microscopic features. The ornamentation of the basidiospores in this subgenus is always reticulate and composed of interconnecting ridges, usually between 0.5 and 1.5 µm high. The pileipellis is typically a palisade with a strongly developed cellular subpellis. True pleurocystidia are rare. As of this writing, *L.* subg. *Gerardii*

contains 18 described species, all from North America, Asia, and the Australian region (Stubbe et al. 2012), and the group is absent from Africa and Europe. The type species, *Lactarius gerardii*, has already been recombined in *Lactifluus*. Stubbe et al. (2010) has demonstrated the existence of several cryptic species and species complexes in this subgenus, and the total number of species will likely increase after more data are gathered on several North-American milk-caps like *Lactarius atro-olivaceus*, *L. pseudogerardii*, *L. louisii*, *L. subtomentosus*, *L. subisabellinus* var. *murrillianus*, and *L. xanthydrorheus*.

Lactifluus* subg. *Gerardii (A.H. Sm. & Hesler) Stubbe, **comb. nov.**
MycoBank MB 564016
≡ *Lactarius* ser. *Gerardii* A.H. Sm. & Hesler, Brittonia 14: 378. 1962
≡ *Lactarius* subg. *Gerardii* (A.H. Sm. & Hesler) Stubbe, Fungal Biology 114: 280. 2010.
Type: *Lactarius gerardii* Peck

Lactifluus atrovelutinus (J.Z. Ying) X.H. Wang, **comb. nov.**
MycoBank MB 564017
≡ *Lactarius atrovelutinus* J.Z. Ying, Acta Mycol. Sin. 10: 191. 1991.

Lactifluus bicolor (Massee) Verbeken, **comb. nov.**
MycoBank MB 564018
≡ *Lactarius bicolor* Massee, Kew. Bull. Misc. Inf. 1914: 73. 1914.

Lactifluus conchatulus (Stubbe & H.T. Le) Stubbe, **comb. nov.**
MycoBank MB 564019
≡ *Lactarius conchatulus* Stubbe & H.T. Le, Fungal Diversity 52: 162. 2012.

Lactifluus coniculus (Stubbe & Verbeken) Verbeken, **comb. nov.**
MycoBank MB 564021
≡ *Lactarius coniculus* Stubbe & Verbeken, Fungal Diversity 52: 152. 2012.

Lactifluus genevievae (Stubbe & Verbeken) Stubbe, **comb. nov.**
MycoBank MB 564022
≡ *Lactarius genevievae* Stubbe & Verbeken, Fungal Diversity 52: 163. 2012.

Lactifluus gerardii (Peck) Kuntze, Revis. Gen. Pl. 2: 856. 1891.
≡ *Lactarius gerardii* Peck, Bull. Buffalo Soc. Nat. Sci. 1: 57. 1873, as "*geradii*".

Lactifluus hora (Stubbe & Verbeken) Stubbe, **comb. nov.**
MycoBank MB 564023
≡ *Lactarius hora* Stubbe & Verbeken, Fungal Diversity 52: 160. 2012.

Lactifluus leae (Stubbe & Verbeken) Verbeken, **comb. nov.**
MycoBank MB 564024
≡ *Lactarius leae* Stubbe & Verbeken, Fungal Diversity 52: 154. 2012.

Lactifluus leonardii (Stubbe & Verbeken) Stubbe, **comb. nov.**
MycoBank MB 564025
≡ *Lactarius leonardii* Stubbe & Verbeken, Fungal Diversity 52: 156. 2012.

Lactifluus limbatus (Stubbe & Verbeken) Stubbe, **comb. nov.**
MycoBank MB 564026
≡ *Lactarius limbatus* Stubbe & Verbeken, Fungal Diversity 52: 147. 2012.

Lactifluus ochrogalactus (Hashiya) X.H. Wang, **comb. nov.**
MycoBank MB 564027
≡ *Lactarius ochrogalactus* Hashiya, Mycoscience 47: 232. 2006.

Lactifluus petersenii (Hesler & A.H. Sm.) Stubbe, **comb. nov.**
MycoBank MB 564029
≡ *Lactarius petersenii* Hesler & A.H. Sm., N. Am. Species Lactarius: 106. 1979.

Lactifluus reticulatovenosus (Verbeken & E. Horak) Verbeken, **comb. nov.**
MycoBank MB 564030
≡ *Lactarius reticulatovenosus* Verbeken & E. Horak, Sydowia 53: 285. 2001.

Lactifluus sepiaceus (McNabb) Stubbe, **comb. nov.**
MycoBank MB 564031
≡ *Lactarius sepiaceus* McNabb, New Zealand J. Bot. 9: 50. 1971.

Lactifluus subgerardii (Hesler & A.H. Sm.) Stubbe, **comb. nov.**
MycoBank MB 564032
≡ *Lactarius subgerardii* Hesler & A.H. Sm., N. Am. Species Lactarius: 107. 1979.

Lactifluus uyedae (Singer) Verbeken, **comb. nov.**
MycoBank MB 564033
≡ *Lactarius uyedae* Singer, Nov. Hedw. 40: 436. 1985.
≡ *Pleurogala uyedae* (Singer) Redhead & Norvell, Mycotaxon 48: 377. 1993.

Lactifluus venosus (Verbeken & E. Horak) Verbeken, **comb. nov.**
MycoBank MB 564034
≡ *Lactarius venosus* Verbeken & E. Horak, Austr. Syst. Bot. 13: 692. 2000.

Lactifluus wirrabara (Grgur.) Stubbe, **comb. nov.**
MycoBank MB 564035
≡ *Lactarius wirrabara* Grgur., Larger Fungi S. Australia: 58. 1997.

Acknowledgments

The authors acknowledge Scott Redhead and Shaun Pennycook for valuable comments and for reviewing the manuscript.

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